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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,600	01/16/2001	Shlomo Berliner	052625-5003	9435
9629	7590	06/01/2004	EXAMINER	
MORGAN LEWIS & BOCKIUS LLP			D AGOSTA, STEPHEN M	
1111 PENNSYLVANIA AVENUE NW			ART UNIT	
WASHINGTON, DC 20004			PAPER NUMBER	

2683

14

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/759,600

Applicant(s)

BERLINER ET AL.

Examiner

Stephen M. D'Agosta

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 10-15 and 17-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 12-15 and 20-30 is/are rejected.
- 7) ☒ Claim(s) 2, 10-11 and 17-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-5, 10-15 and 17-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 12-15, 20-28 and 30 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokey et al. US 5,596,330 and further in view of Cease et al. US 3,681,695 (hereafter Yokey and Cease).

As per **claims 1, 14, 25-28 and 30** Yokey teaches a wireless transmission system (figure 1) comprising:

A first wireless device including:

- first receiver that receives a plurality of forward path RF signals comprises a plurality of forward path RF signals comprising different carriers modulated with a modulation signal, the different carrier frequencies having approximately the same multipath transmission characteristics between the first and second wireless devices (abstract teaches simultaneously transmitting two radio frequency carriers having different carrier frequencies such that a phase difference can be observed, which reads on the claim).

a demodulator for detecting the modulation signal in said plurality of forward path signals and a synthesizer for generating said plurality of reverse path signals from the

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modulation signal (figures 9 and 10 show the transmitter and receiver which includes a demodulator. Figure 10 also shows two synthesizers).

- first transmitter for transmitting said plurality of reverse path RF signals, wherein reverse path RF signals are phase coherent with the at least one forward path RF signal (abstract teaches TOA system with two simultaneous signals having different carrier frequencies – since Yokey does not elaborate on phase coherence, the examiner interprets the system as being operable on signals that are OR are not phase coherent).

A second wireless device including:

- a second transmitter that transmits the plurality forward path RF signal received by first receiver of first wireless device (figure 1 shows transmitters and receivers, ie. base stations and wireless users)

- second receiver that receives reverse path RF signals (see figure 1 again)

- a detector that generates phase comparison data based on at least the received reverse path RF signal (abstract teaches “a phase difference is observed between the two carriers at a distance” which is interpreted as a detecting device)

- controller/processor that generates transmission path data using the detected phase data and the carrier frequencies and identifies from the transmission path data time delay information for the RF signals traveling in a direct path between the first/second wireless devices (abstract teaches TOA technique and figure 9, #801 is processor).

But is silent on detecting/using amplitude data and whereby error introduced by RF signals traveling in an indirect path is reduced or eliminated.

Cease teaches a system that uses both phase and amplitude detectors for multipath compensation [eg. reads on reduces/eliminates error introduced by indirect path RF signals] (title, abstract and figure 1, #36 and #48). Since Cease teaches using both, one skilled in the art would modify Yokey to use both as well.

With further regard to claims 25, 26 and 30, Yokey teaches the use and control of a synthesizer (figure 10, see middle of the page – two Double Loop Synthesizers shown, both are controlled by MicroController 68HC05B6). The

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MicroController will contain a computer readable storage medium containing instructions that controls the device/system as well.

With further regard to claim 28, Yokey teaches the use of IFT and FFT techniques (C4, L48-59 and C10, L36-48)

It would have been obvious to one skilled in the art at the time of the invention to modify Yokey, such that amplitude can be detected, to provide multiple means in which to measure a signal and determine distance (ie. phase, amplitude, frequency, etc.).

As per **claims 3 and 15**, Yokey teaches claim 1/14 and a phase detector that generates phase data (abstract teaches determining a phase difference) **but is silent on** quadrature amplitude determining.

Cease teaches a system that uses both phase and amplitude detectors for multipath compensation (title, abstract and figure 1, #36 and #48). If Yokey's system utilized QAM (as is well known), one skilled in the art would then use a QAM phase/amplitude detector.

It would have been obvious to one skilled in the art at the time of the invention to modify Yokey, such that quadrature amplitude can be measured, to provide means for using the system in a QAM environment.

As per **claims 4-5, 20-21**, Yokey teaches claim 1/14 wherein the plurality of forward path and reverse paths are full/half duplex transmissions (remote mobile units can transmit and receive data from base stations, C4, L2-15).

As per **claims 12 and 22**, Yokey teaches claim 1/14 wherein Yokey teaches the use of IFT and FFT techniques (C4, L48-59 and C10, L36-48).

As per **claims 13, 23**, Yokey teaches claim 12/22 wherein the controller further uses a peak search to identify time delay information (C18, L16-20).

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As per **claim 18**, Yokev teaches claim 17 wherein at least one forward path is frequency hopping spread spectrum (abstract teaches frequency hopped spread spectrum).

As per **claim 24**, Yokev teaches claim 22 wherein the processor determines the distance between the two wireless devices (abstract teaches locating the one wireless device whose coordinates can then be used to determine its distance to ANY other object whose location is also known).

Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Yokev/Cease and further in view of Hane US 4,804,961 (hereafter Hane).

As per **claim 29**, Yokev teaches claim 28 **but is silent on** wherein generating amplitude/phase data comprises generating local RF signals using the forward path signal and comparing the phase of the local RF signal and the received RF signal.

Hane teaches comparison of transmitted (forward or reverse) and received (reverse or forward) signals which are used to determine distance between objects (abstract and figure 1).

It would have been obvious to one skilled in the art at the time of the invention to modify Yokev, such that one compares the phase of the local RF signal and the received RF signal, to provide means for comparing the transmitted signal with one that is received back from the receiver for measurement purposes.

Allowable Subject Matter

Claims 2, 10-11, 17 and 19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

These claims recite highly specific designs not found in the prior art cited and appear novel in the examiner's opinion based on their combined limitations.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

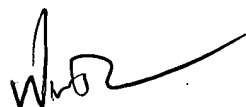
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 703-306-5426. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 703-308-5318. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta
5-24-04



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